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Part V

IBAN METHODS OF LAND USAGE

Introduction

261. In their natural state the hills of the Baleh region (i.e. up to about 1,000 feet) are covered with tropical, lowland, evergreen rain-forest. It is with this kind of forest that we shall be dealing in discussing land usage, for nowhere in the Baleh did I encounter Iban farming ridges more than 1,000 feet in height, though many farm clearings approached to within one or two hundred feet of this level. Prior to 1880, the forests over almost the entire Baleh basin were primeval.[1] To the Iban virgin jungle is the most highly valued of all resources: by felling it, rights over land are acquired, and, if weather conditions be favourable, virgin land yields crops of exceptional abundance for two years in succession. The "rich, untouched vegetation" of the Baleh was, to the Iban, the most inviting of prizes, and desire to exploit it was the over-ruling incentive of their advance and an important motive in prompting their fierce attacks on alien tribes that stood in the way. Head-hunting and a craving for virgin land went hand in hand. During the past eighty years, hundreds of thousands of acres have been felled and farmed, so that to-day aerial photographs of the Baleh show complex mosaics in which remaining enclaves of virgin forest are surrounded and interspersed with secondary jungle at many different stages of regeneration.

Iban Terminology for the Main Stages of Land Usage

262. Every land usage cycle begins with the felling of an area of primeval forest—the area felled varying from about three to eight acres according to the size of the *bilek* family concerned. For the primeval forest and the various types of secondary growth which result from the cultivation sequences that follow its felling, the Iban have a special set of terms. These terms conveniently summarize the main stages in land usage. Briefly they are as follows:

(*a*) The general term for primeval jungle is *kampong*, but it is commonly qualified—as in the phrases *kampong dalam* (lit. deep jungle), and *kampong amat* (lit. true jungle)—to signify that it has never before been felled.

(*b*) After felling the *kampong* is fired, and when this stage is reached, the farm land is referred to as *tegalan*. *Padi* is dibbled in betwixt and between the charred remains of the fallen trees, carefully tended throughout its growing period, and finally reaped. The stubble that remains when the harvest is over (i.e. in about April) is the *jerami*. Within a few months there is robust regeneration accompanied by coppice growth; in fact, it begins at the end of the weeding (i.e. early in January), so that by August the farm is covered with a dense scrub several feet in height. This scrub—the next important stage to be distinguished—is called *krukoh*; and if it is scrub that has resulted from the felling the year before of

[1] According to Iban informants there were a few limited areas of secondary jungle which had resulted from the activities of the Lugat. The Lugat were a tribe (allied to the Kajang peoples of the upper Rejang) who formerly occupied the Baleh, but were driven out by Iban attacks.

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311 virgin forest, it is called *krukoh kampong*. It is normal Iban practice to slash this
192 *krukoh kampong*, fire it, and farm the land two years in succession.[1]

137 (*c*) When *krukoh kampong* land is farmed, the subsequent regeneration is markedly less vigorous, and the plant composition of the resultant scrub is distinctly changed in character. This scrub—the outcome of cultivating land for two years in succession—is called *pangkal*; and if it has originated from *krukoh kampong*, it is called *pangkal kampong*. The farming of *pangkal kampong* occurs in a limited number of cases, but nowhere did I encounter, or hear reports of land being worked for four years in succession.

(*d*) If the *krukoh* scrub that springs up after the felling and firing of *kampong* is not farmed, but allowed to lie fallow for a year, it then becomes *dijap*. Several different kinds of *dijap* are distinguished according to the duration—in years—of the fallow period. For example, *dijap se taun* is *dijap* resulting from one year's fallow; *dijap dua taun* is *dijap* resulting from two years' fallow, and so on. *Dijap* may also result from land being farmed for two years in succession and then being left fallow for one or more years before re-use; in this instance it is known as *dijap krukoh kampong*. Again, *dijap pangkal kampong* is the growth which results when land is cultivated during three successive seasons and then left fallow for one or more years. *Dijap* is frequently felled and farmed—but never for two years running.

(*e*) After about five or six years, *dijap* (or the growth that follows the farming of *dijap*), changes from straggling thicket to well-established secondary jungle; and when this stage is reached it is called *damun*. The point at which young secondary growth ceases to be *dijap* and becomes *damun* cannot be fixed with any exactitude. The distinction is an indefinite one, and I have heard growth on the borderline, referred to by both terms. Perhaps the difference is best marked by the practical test that whereas it is customary to clear *dijap* with a heavy bush-knife (*duku*), an axe (*kapak*) is used to fell *damun*. In general, the *damun* stage is reached after about five years, though a good deal depends on the usage to which the land has been submitted prior to its being allowed to lie fallow. Thus, if *kampong* land is felled and farmed only once, and then allowed to lie fallow, there is rapid and healthy regeneration; while in the case of land farmed two or three times in succession, or within a brief span of years, regeneration is retarded and much less vigorous. *Damun* can result from any of the types of usage listed in (*a*)—(*d*) above, that is: from *kampong*, *krukoh kampong*, *pangkal kampong*, *dijap kampong* and *dijap krukoh kampong*; and in each case it is different in character. Furthermore, *damun* is a general term applied to any kind of secondary jungle—from about five to twenty years of age and over; in this sense it is commonly used to describe any land over which customary rights of tenure have been acquired. When *damun* has reached maturity it is then frequently

[1]Cf. Howell and Bailey ("A Sea Dyak Dictionary," 1900, p. 70): "Kakah, s.—last year's stubble farmed this year; v. to farm last year's stubble." (This is the dialectal form of the Second Division).

Note: It should be noted that in this report we are discussing the terms used in the Baleh region. The same terms are employed by other Ulu Ai Iban, but different usages are encountered among the Iban of other parts of Sarawak. For example, Mr. A. R. Snelus noted in 1949 that "the term *damun* . . . . is seldom now heard and has been commonly replaced by the Malay word '*jerami*' amongst the Lemanaks and Layars of the Sarikei district," and further that "the word *temuda* is commonly used in application to *all* stages of secondary growth to connote merely *any* land over which customary rights have been acquired through original felling of the virgin jungle for the purposes of farming *padi*." It is clear that in assessing the analysis presented in this report, due allowance must be made for differences in terminology from district to district and from tribe to tribe.

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referred to as *pengerang*. Once again, no precise definition is possible; *pengerang* has the general meaning of "old secondary jungle", but it is the height and size of the trees and not the length of the fallow period which is the accepted criterion. The time taken for *damun* to reach the required level of maturity varies considerably, for *damun* may result from any one of a number of different land usage sequences, each of which produces a distinctive type of regenerative growth. As far as I was able to determine (i.e. by reckoning, with the aid of informants, the number of farming seasons that had elapsed since an area of secondary jungle was last felled), *damun* reaches the *pengerang* stage after a period of growth ranging from twenty to thirty years. After a lapse of anything from ten to thirty or more years, *damun* land is brought back into use.

(*f*) The scrub that grows up during the three or four months following the taking of a crop from *damun* land is called *krukoh damun*. To slash and burn this *krukoh damun* (i.e. to cultivate secondary jungle for two years in succession) is generally recognized as inexpedient practice by the Iban; weed growth tends to be so vigorous as to outstrip all attempts to cope with it, and subsequent regeneration is so inhibited that the land stands in danger of suffering lasting harm and becoming derelict (*tanah kusi*). Nonetheless, the method is followed to a limited extent.

(*g*) The growth that emerges during the few months immediately succeeding the taking of a crop from *krukoh damun* land is known as *pangkal damun*. *Pangkal damun* is very rarely farmed, but during my two years in the Baleh I did encounter several instances—instances, that is, of secondary jungle (*damun*) being cultivated during three consecutive years.

(*h*) If *damun* be felled and farmed, and then permitted to lie fallow for one, two, three, or four years, the resultant scrub is termed *dijap damun*. The cultivation of *dijap damun* is fairly common.

(*i*) In due course, *dijap damun* (or the re-growth that follows the cultivation of *dijap damun*) reaches a stage of maturity entitling it to the general appellation of *damun*—i.e. well established secondary jungle. Strictly speaking, this kind of re-growth is *damun damun* (secondary jungle resulting from the cultivation of secondary jungle); this however, is a pedantic usage, and although I did hear it used by Iban in the course of a detailed explanation, it is customary to refer to all types of secondary jungle of whatever origin by the general and unqualified term: *damun*.

(*j*) It sometimes happens, because of heavy rain during the months of July, August and September, that the burn is a bad one, and so much so that part of the area which has been felled cannot be cultivated. In this event the land is allowed to revert to scrub for one year; it is then called *budu*. Two main kinds are distinguished: *budu kampong* and *budu damun*. After a year has elapsed the scrub is usually slashed, and a second attempt is made to fire it. This type of usage is only encountered after an exceptionally wet season however, and rarely comprises more than a minor percentage of the total area under cultivation.

263. It will be observed that the system of nomenclature recorded above follows a consistent pattern, but that while some terms (e.g. *kampong*, *krukoh kampong*, *pangkal kampong*) have a quite definite connotation, others (e.g. *dijap*, *damun*) are not rigidly defined and, in actual use, often overlap. This overlap seldom involves a period of more than two or three years however, and it becomes possible therefore to express the main distinctions recognized by the Iban in a simple form of notation. As the datum of this scale we have primeval

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burn. One of the hazards of farming virgin jungle is the Borneo climate. In the interior of Sarawak the rainfall is heavy, and falls of 160 inches and more per annum are not uncommon. In general, June and July are the driest months, but the rainfall is never really low. Records taken at Kapit, for the four years 1948-1951, show a monthly mean of 7·66 inches for June, and 8·17 inches for July. But this comparatively 'dry period' cannot be relied upon. In 1949, for example, 17·40 inches fell in May, 9·55 inches in June, 11·33 inches in July, 13·81 inches in August, and 12·76 inches in September; so that in this year there was no *kamarau*, or dry season. When adverse weather, such as this, is encountered, *kampong* farms suffer the most, for virgin forest needs a longer 'dry period' than any other type of jungle. In contrast, slashed *krukoh* requires the briefest dry spell of all, and will burn well after about five days of tropical sunshine. Even in adverse years a brief span of hot, dry weather often occurs, and *krukoh* land can often be successfully fired under conditions inadequate fo. the proper firing of an *umai kampong*.

272. But there are also several other factors which prompt Iban addiction to *krukoh* farming. Of most importance is the fact that, in general, the yield obtained from *krukoh* land is usually as good—and not infrequently better—than the yield taken from *kampong* land. The *krukoh* scrub which springs up after the first harvest is vigorous and contains few, if any, of the weeds that are the great bugbear of the Iban farmer. Thus, when *krukoh* has been slashed and burned, the land is still predominantly free from weed infestation, and at the same time there is sufficient richness in the soil to assure a second crop of excellent quality. A thoroughly burnt *krukoh* farm may well produce a heavier crop than a poorly fired *kampong* farm. The Iban are fully aware that good virgin land is capable, under favourable conditions, of producing two consecutive crops of the highest quality; and it is understandable—if not excusable—that they should yield to the temptation of trying to grow and reap them. That two successive and abundant crops can be harvested from *kampong* land is an undoubted fact, and it is important that this should be realized. It is also true that successive cropping inflicts permanent injury on the land; but cognizance of this consequence calls for an appreciation of principles of good husbandry which the Iban—alas—do not possess.

Iban Prodigality

273. Of the fact that the Iban are prodigal of the land there can be no doubt. They are, indeed, *mangeurs de bois*. It is not difficult to explain why they have become like this. Ever since they broke into the Rejang basin more than a hundred years ago, the Iban have had before them limitless tracts of virgin rain-forest. As the Tuan Muda (later Sir Charles Brooke—the Second Rajah of Sarawak) records in his journal of 1863, the middle Rejang and the Baleh were, at that time virtually uninhabited, and "clothed with rich, untouched vegetation"; with virgin forests that were "luxuriant to the wildest extent". From their numerous forays into Kayan country, the Iban well knew the vastness of these primeval forests—which were theirs for the taking. In these circumstances of super-abundance, the forest became an expendable resource. The impulse of the Iban was to extract all the wealth they could from the nearest virgin land, and then move on to fresh fields. (This also had the effect of opening up many new opportunities for head-hunting, the looting of enemy property, and the taking of slaves). In a sense, the Iban became semi-nomadic, for in one generation many *bilek* families moved forward, in stages, over fifty to a hundred miles of territory,

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times rises to about two-thirds. From a rapid survey of the farms of 1950-51, I would estimate that, on an average, *krukoh damun* comprised about one sixth of a farm's total area. This conclusion is supported by more exact data for the three *bilek* families that cultivated *krukoh damun* land in 1949-50:

Table 31: Cultivation of Krukoh Damun at Rumah Nyala in 1949-50

Name of bilek family	*Total area of farm, in acres*	*Area of krukoh damun, in acres*	*Krukoh damun as a percentage of the total farm*
No. 1a Bangi	5	½	10%
No. 7 Gadu	6½	1½	23%
No. 16 Jala	6	1	16%

Although the cultivation of *krukoh damun* is less prevalent than the cultivation of *krukoh kampong*, it is sufficiently widespread to be ranked as a customary method of land usage. Moreover, it deserves even greater condemnation than the *krukoh kampong* method, for its effect on the land is much more deleterious.

The Effects of Shifting Cultivation

292. Let us now turn to a survey of the effects of shifting cultivation. This is not a subject on which an anthropologist is entitled to speak with any authority, but in view of the great paucity of reliable information, a few general comments may be of interest to future investigators. Since the practice of shifting cultivation first came to the attention of scientific observers, judgements on its merits and demerits have been very mixed. Some have condemned the entire system out of hand—and with no small emotional fervour. But such attacks contribute little to our understanding. Of the fact that shifting cultivation often leads to deplorable results there can be no question; but this does not necessarily mean that the whole system is evil. In my opinion, *it is crucially important to recognize that within the general system of shifting cultivation there are both good and bad methods of land usage*. I also believe there can be little doubt but that the great bulk of the Iban population will continue to live by shifting cultivation for many years to come,[1] or at least in the immediately foreseeable future. It therefore becomes a matter of the utmost consequence to single out bad methods of land usage so that some attempt may be made to eradicate them; and, at the same time, to recognize and encourage methods which, if not commendable, are at least technically tolerable. With these objects in view, let us examine some of the effects of Iban methods of land usage.

Regeneration after the Cultivation of Virgin Jungle, or Kampong

293. The primeval forests of the Baleh region belong (up to 2,500 feet) to Burtt-Davy's 'tropical lowland evergreen rain-forest' formation;[2] this is sub-divided by Symington[3] into 'lowland dipterocarp forests (0-1,000 feet)' and 'hill dipterocarp forests (1,000-2,500 feet)'.[4] For the most part the Iban cultivator

[1]This view has now been accepted by the Department of Agriculture, Sarawak; ref. Annual Report for 1949, p. 4, para. 19.

[2]Burtt-Davy, J.: "The Classification of Tropical Woody Vegetation Types," Imperial Forestry Institute, Paper No. 13, 1938.

[3]Symington, C. F.: "Foresters' Manual of Dipterocarps," Malayan Forest Records, No. 16, 1941.

[4]Mr. H. G. Keith ("The Timbers of North Borneo," North Borneo Forest Records, No. 3, 1947), gives a good general description of the Borneo rain-forest. Its chief characteristics are

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137 confines his attention to hill-sides and ridges up to about 1,000 feet in height. The 311 felling and firing of virgin forest involves great havoc, but regeneration begins almost at once, and within a few weeks of the completion of the *padi* harvest, the land is often substantially covered with a vigorous growth of young plants. After three to four months, recuperation is well advanced, and the farm has then reached the *krukoh* stage. On 23rd August, 1949, together with Mr. B. E. Smythies (then Forestry Officer, Third Division), I visited a number of farms belonging to members of Pengulu Jenggut's house in the lower Batang Baleh. One of these farms was at the *krukoh kampong* stage, i.e. virgin forest had been felled about 13 months previously and one crop of *padi* had been taken from the land. Mr. Smythies has described this patch of *krukoh kampong* in these words: "There was ample and vigorous regeneration of tree species, both by coppice shoots and by growth from seedlings; a few ferns had sprung but no *lalang* or other weeds, and it was obvious that a complete cover of trees and shrubs would be established in another one or two years if left undisturbed".[1] It should be mentioned that this patch of *krukoh kampong* was within half a mile of a *lalang* infested area of derelict land (*tanah kusi*) presently to be discussed.

294. Mr. Smythies' words might also have been written of any of the other tracts of *krukoh kampong* which I examined in various parts of the Baleh region. Moreover, judging from observations made at Rumah Nyala, regeneration subsequent to the *krukoh* stage is even more rapid than Mr. Smythies predicts. I was able, for example, to follow the recuperation of *kampong* land which had been cleared and farmed in 1949-50; by February, 1951, that part of the land not cultivated again in 1950, had reached the stage known as *dijap kampong*. This *dijap kampong* had become (about nine months after the harvest of 1950) a dense thicket of thriving plants, many of the young trees being eight feet and more in height (Plate 23). There can be no doubt that, if unmolested, this *dijap* would become healthy secondary jungle. The composition of such secondary jungle (*damun*) is, of course, very different from that of the original rain-forest. A study of the different types of plant association which result from Iban methods of *padi* cultivation would provide many fascinating problems for the plant ecologist. All that need concern us here however, is the important fact that secondary jungle which springs up after the taking of one crop from *kampong* land, is vigorous and healthy, containing very few noxious weeds.

Erosion

134 295. Although there is very little trustworthy evidence, such as does exist suggests that when only one crop is taken from virgin land, there is very little erosion. When virgin land is being farmed, the surface is only seriously exposed for one or two months after firing, and even during this period there is a protective layer of humus, ash, and partially burnt logs and boughs. As soon as the harvest is over a cover of young plants begins to establish itself. The only thorough study of erosion under conditions of shifting cultivation, of which I am aware, was that carried out by the Forestry Service of the Indies, at an experimental station

as follows: "Botanically very complex, comprising 2,000 or more species. Climbing palms (rattans) and numerous species of large vines (lianas) occur; bamboos scarce, though climbing bamboos occur here and there. Many tree species carry a large epiphytic flora on their trunks and branches, e.g. ferns, mosses, orchids. The forest floor, owing to rapid oxidation, does not carry a thick layer of leaves and humus."
(For this note I am indebted to B. E. Smythies, Esq.).

[1] B. E. Smythies, MSS., 30th August, 1949.

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near Tjiwidej, in West Java. Two adjacent parcels of forest land, lying on rather steep slopes, at an altitude of 1,800 metres, were selected for study. Each was drained separately, and at the foot of each slope, elaborate catch-basins were constructed, so that the run-off of water could be measured and the amount of sediment weighed. One piece of land was terraced, and the other left in its natural state. Pelzer reports: "During the first year both parcels lost very little soil because the humus layer protected it; but in the second year the unterraced parcel lost 5·065 kg. of silt per square metre, whereas the terraced parcel lost only one-half as much, or 2·524 kg."[1]

296. At Rumah Nyala I did not have the facilities to make a controlled study of erosion, but my impression was that when virgin jungle is cultivated *for one season only*, erosion is very slight indeed. Erosion, I would suggest, only becomes serious when land is farmed for two or more years in succession, or when the cycle of cultivation becomes too short.

The Effects of Shifting Cultivation on Soil Composition and Structure

297. A valuable study of the effects of shifting cultivation on soil composition and structure has been made in Ceylon by Dr. A. W. R. Joachim and S. Kandiah.[2] (In Ceylon, shifting cultivation is known as the *chena* system). The conclusion reached after most detailed investigation is that there are "no adverse effects on soil structure expressed as percentages of total crumbs or true crumbs, as a result of chena-ing forest land . . . . Thus chena land on abandonment is both from the fertility and structural points of view in much the same condition as any other land that is utilized for rotation cultivation".[3]

The Factor of Weed Growth

298. Joachim and Kandiah go on to ask why it is that the native farmer adopts the system of shifting cultivation. "The answer", they write, "is weed growth, which is beyond the capacity of the chena cultivator to tackle by hand and to control, while, implements, were he able to obtain them, cannot be used owing to the presence of stumps on the land".[4] These conclusions are for Ceylon, and it does not follow that they are valid for shifting cultivation as practised in Sarawak, comparable though it be to the chena system. This question can only be settled

[1]Karl J. Pelzer, "Pioneer Settlement in the Asiatic Tropics: Studies in Land Utilization and Agricultural Colonization in Southeastern Asia," New York, 1945, p. 32. For a detailed report of the erosion experiment at Tjiwidej, see: L. Gonggrijp, "Het erosie-onderzoek," Tectona, Buitenzorg, Vol. 34, 1941, pp. 200-220.

[2]Dr. A. W. R. Joachim and S. Kandiah, "The Effects of Shifting (Chena) Cultivation and Subsequent Regeneration of Vegetation on Soil Composition and Structure," Tropical Agriculturist, Vol. 104, 1948, pp. 3-11.

[3]One significant aspect of shifting cultivation is the effect of heating on soil fertility, "not only is the productivity of the soil increased by partial sterilization, but there is also an increase in the rate of growth of plants grown in such soils."

Dr. H. W. Jack (writing in 1923) comments: "These phenomena have only been discovered in the last decade and yet the hill *padi* planter has taken advantage of them, probably for hundreds of years, in the practice of burning the scrub and timber on his clearings and thus unconsciously increasing the productivity of his land by the partial sterilization which such heating of the soil affords." (Ref.: H. W. Jack, "Rice in Malaya," Malayan Agricultural Journal, Vol. 11, 1923, p. 116.)

[4]Joachim and Kandiah (1948) *op. cit.*

Cf. Allsop, F., "Shifting Cultivation in Burma," Proceedings of the Seventh Pacific Science Congress, vol. VI, 1953, p. 278: "Local conditions determine whether or not a clearing is cultivated for one season or more. The vigour of the weed growth, particularly in the warmer lands, sometimes makes it impossible to obtain a crop after the first season, except by expenditure of more energy than the cultivator is prepared to exert."

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by further research by botanists and soil scientists; but meanwhile, the conclusions of Joachim and Kandiah deserve our closest attention. In my own opinion their analysis is directly applicable to the conditions in Sarawak, for it is borne out by my own observations among the Iban.

299. As pointed out earlier in this report (Para. 118-124), weed control is one of the major difficulties with which Iban farmers have to cope. It is my impression that weed growth, more than any other single factor, is responsible for crop failures. As the Iban put it: "Amongst weeds *padi* will not grow" ("*Alam babas enggai padi idup*"). On a number of farms of Rumah Nyala, large areas became so rife with weeds that the *padi* was choked out of existence. One of the great advantages of farming virgin land is that weeds are few, and fairly easy to control. When *damun* is cultivated they are always worse, and if land is overworked, a stage is reached when weeds gain the upper hand and the land becomes derelict (*tanah kusi*, lit. used-up land). Under these conditions weed growth becomes so severe as to defy control.[1] This is graphically expressed in the Iban aphorism: "If *tanah kusi* (i.e. weed infested ground) is farmed, Pulang Gana—the god of fertility—himself, cannot grow *padi*" ("*Enti bumai di tanah kusi, Pulang Gana empu enda dapat bulih padi*").

The Effects of Cultivating Krukoh Kampong

300. We have seen that after one crop of *padi* has been taken from virgin land, regeneration is rapid and very few noxious weeds become established. Let us now consider what happens when virgin land is cultivated for two years in succession (i.e. the *krukoh kampong* method of usage): "The stools sending up coppice shoots are either killed or greatly weakened; the tree seedlings are mostly killed, though a few may coppice; and the only fresh tree seed on the ground will be light wind-borne seed that may have blown in from seed-bearers near-by. Meanwhile the ferns and grasses which develop enormous quantities of very light spores and seeds that carry for miles on a zephyr, are enabled to gain a footing amongst the now weakened tree regeneration; and as they are fire resistant each successive burn helps the weeds at the expense of the trees and shrubs".[2] As this account indicates, regeneration after two successive burns (i.e. *krukoh kampong* usage) is of a markedly different type from that which follows a single crop taken from *kampong* land. Moreover, this difference persists and is reflected in the inferior quality of the *damun* which ultimately results. In other words, successive burnings inflict upon the land serious and permanent injury.

The Effects of Cultivating Dijap Kampong

301. Deleterious results also ensue when healthy, young vegetation (i.e. from *kampong* land) is slashed and burnt before proper regeneration (which would seem to require at least ten years) has taken place. This means that the *dijap kampong* method of land usage is also wholly to be condemned. An interesting illustration of the outcome of this kind of usage is contained in the report of an investigation carried out by the Forest Department in Malaya. In 1945, part of the Kanching Forest Reserve was felled, and the cultivation of hill rice took

[1] Cf.: "The Sea Dyaks (i.e. or Iban) themselves, however, do not suppose that the soil is in any way incapable of bearing further culture; but give always as a reason for deserting their farms, that the weeds and grass which immediately spring up after the *padi* has been gathered, are less easily eradicated, than ground occupied by old jungle is prepared." Ref.: Low, H., "Sarawak," 1848, p. 231.

[2] B. E. Smythies, MSS., 30th August, 1949.

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place. In 1947, the area was cleared a second time, and part of it fired; the vegetation was thus of the type known to the Iban as: *dijap kampong langgang se taun* (e.g. *K*1-3). *Padi* cultivation did not occur however for the offenders were prosecuted. Three sample plots were established to study "natural plant succession", on (*a*) the slashed and burnt area; (*b*) the slashed and unburnt area; and (*c*) the unslashed, secondary growth dating from the farming season of 1945-46. After a period of 18 months the following conclusions were drawn: "The vegetation differences between the burnt and unburnt area are most marked, the extra burn obviously having killed a large number of stumps that would have coppiced and roots that would have sent up sucker shoots, as well as killing the large quantities of dormant seed, which are always present in the top layers of the soil. The resulting delay in obtaining a vegetative cover, as well as the impoverishment of the soil, has permitted the appearance of wind-borne colonisers such as *Imperata arundinacea*, which, once present is difficult to eradicate, and in itself prevents or delays the invasion of woody species".[1]

302. Evidence has now been adduced to show how injurious are the effects of cultivating either *krukoh kampong* (e.g. *K*1-2), or *dijap kampong* (*K*1-3, *K*1-4, etc.). More intensive cultivation, as—for example—of *pangkal kampong* (e.g. *K*1-2-3), or *dijap krukoh kampong* (e.g. *K*1-2-5, *K*1-2-6), produces even more detrimental results, for repeated burning only serves to accelerate the regression of the vegetation from the climax type of rain-forest to a post-climax savannah type of plant association.[1]

Excessive Usage of Secondary Jungle

303. So far we have been discussing the effects of bad usage in virgin territory. All that has been said applies with even greater force to the exploitation of mature secondary jungle, or *damun*. If well established *damun* (say, 15 years old), resulting from a single year's use of *kampong* land, is felled and farmed *once only*, adequate regeneration soon takes place. But if *damun* land be cultivated for two years in succession, the injurious results—already noted for this kind of usage in virgin territory—are very considerably magnified. The same applies to the farming of *dijap damun*; and if three successive burns occur (i.e. the cultivation of *pangkal damun*) the land is permanently degraded into *tanah kusi*, and becomes worthless.

304. A striking example of what happens when *pangkal damun* is farmed was encountered at Rumah Pengulu Jenggut, in the lower Batang Baleh. In August 1949—together with Mr. B. E. Smythies—I examined a series of low spurs (e.g. about 200-300 feet, above the level of the Baleh) which had been farmed for three seasons in succession (i.e. the seasons of 1946-47, 1947-48 and 1948-49) by certain *bilek* families of Rumah Jenggut. In early 1946, the spurs had been covered with *damun*, and judging from adjacent sections, it had been average quality *damun* perhaps 12-15 years of age. (The *kampong* in this part of the Baleh—known to the Iban as Batu Bansu—was first felled in about 1906, but its subsequent usage is obscure). Pengulu Jenggut, and a number of other informants,

[1]Ref.: "The Malayan Forester," Vol. XII, No. 2, 1949, pp. 83-86.

[2]Cf.: Professor E. B. Copeland's comment on shifting cultivation in the Philippines, where it is known as the *caingin* system: ". . . . the first crop of the *caingin*, if the ceremonies are effective, is very heavy, the next not nearly so good, and a third may or may not be planted, but at best will be poor. In the absence of fire the land returns to brush and then to forest, unless cleared again before it reaches that stage. The Government's chief objection to the *caingin* practice is that, by accident or intent, fire after the clearing is abandoned very often turns the site to grass instead of forest." (E. B. Copeland, "Rice," 1924, p. 220).

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

X 243 311 137 had not the slightest hesitation in relating that the land had been cultivated during three consecutive seasons, and it was clear that they regarded this as a perfectly ordinary sort of happening. Several of them did mention, however, that the harvest on the third time of farming was a very poor one, for the *padi* was overwhelmed with weeds and would not grow properly.[1] That this was the case there can be little doubt, for when Mr. Smythies and I inspected the land about four months after the third successive harvest, it had become derelict (*tanah kusi*); there was scarcely a tree or shrub to be seen other than the common weed *kemunting* (Melastroma), the rest of the vegetation being composed almost entirely of the grasses, ferns and herbs that constitute the *lalang* association.[2] There seemed no chance that this land could ever again become healthy *damun*; probably it will remain permanently in the grip of *lalang* and associated weeds, like so many of the hills bordering the course of the Rejang between Kanowit and the mouth of the Baleh. In three short seasons—and for very small return—Iban prodigality had reduced moderately productive land to a useless waste.

305. Also at Rumah Jenggut—in August, 1949—we inspected a tract of *krukoh damun* which had sprung up after the farming of about 10 year old *damun* during the *padi* season of 1948-49. This *krukoh damun*—then four to five months old—consisted of a thick undergrowth, interspersed with young trees up to about 6 feet in height.[3] It presented a most marked contrast to the neighbouring *tanah kusi* (described in Para. 304), which had been cultivated for three years in succession. There can be no doubt that this *krukoh damun*, if left untouched for ten or more years, would become healthy *damun* once again. But, alas, part of it had already been slashed for cultivation during the coming season (i.e. 1949-50).

Conclusion

X 243 311 306. This brings us to the heart of the matter. Under Sarawak conditions, if virgin rain-forest is felled, fired and farmed for *one season only*, and then allowed to recuperate, adequate regeneration takes place. Furthermore, if thereafter the resulting secondary jungle (*damun*) is brought into cultivation at sufficiently rare intervals (i.e. about every 12-15 years), and *never for more than one season*, the land may be utilized virtually indefinitely without serious degradation taking place. Should these conditions be observed, shifting cultivation is an economically justifiable form of land usage. However, as soon as the cycle becomes too short, and particularly when land is cultivated for two or more years in succession,

[1] Cf.: Mr. B. E. Smythies account: ". . . . the farm behind Pengulu Jenggut's house started as *damun* in 1946 and the rapid deterioration resulting from cropping in successive years was graphically illustrated by the Pengulu himself—he described the *padi* as being about chest-high in 1947, waist-high in 1948, and knee-high in 1949. The ground is now *tanah kusi* . . . ." (Ref.: "Sarawak Gazette," 7th October, 1949, p. 252).

[2] It was freely admitted by the members of Rumah Jenggut that the land had become *tanah kusi*. Degraded land of this type is still rare in the Baleh, and it may be of interest therefore, to record the names of the various plants which have established themselves on the *tanah kusi* at Rumah Jenggut. Within a brief period 26 different species, nearly all of them noxious weeds, were collected; they fell into four main classes as follows:

Grasses: *lalang, rumput blanda, ruding mawang, brang empliau, kajuru, nyabu, paka, tempara Apai Sali.*

Ferns: *deman, selap padi, kalindang, paku kras, paku unus, remat besai, remat mit.*

Herbs: *mambang, kesing mayau, kaniyong, rubai, manyam, mambang iko lachau, beruru, jelumpang.*

Shrubs: *entimau, bansu, kemunting.*

The following plants were identified in this *krukoh damun:*

empapa, empitap, gentu, purang, pempan, aras, manyam, tapang lalat, manding, sawe, serang, grating.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

NOTES ON PHOTOGRAPHIC PLATES

Frontispiece. A view of the *padi* farm of the *bilek* family of Kubu, Rumah Nyala, Sungai Sut, in 1950. This farm was one of a series that extended along the crest of a 800ft.—900ft. ridge overlooking the headwaters of the Sungai Nyunggau and the main valley of the Baleh river. (See Sketch Maps 1 and 3). Cleared from virgin jungle in 1949, the land is being cultivated for the second year in succession. In the foreground, young *padi* and cassava plants are springing up. Beyond the farm hut (on the open platform of which are Kubu's wife and grandson), Kubu's farm extends towards that of his neighbour, Kamba (the augur of Rumah Nyala), whose farm hut can also be discerned. Virgin jungle (*kampong*) is still standing on the spur in the right background, while to the left are slopes thickly covered with young secondary growth (*dijap kampong*). Photograph taken on 23rd December, 1950, by Mr. B. E. Smythies.

1. Iban farm clearings in Sungai Saban, Ulu Sut, Kapit District, Third Division, Sarawak. Photograph taken on 3rd September, 1949, just before the firing of the farms. In the background is Mt. Goram (3,073 ft.).

2. A farm clearing (*umai*) in virgin jungle (*kampong*) in the Upper Batang Baleh, Kapit District. Photograph taken on 27th February, 1949, when the farm was covered with a heavy crop of *padi*. In the lower right hand corner is part of the roof of the farm house (*dampa*) from which the land was worked. Note tree stumps with buttress roots.

3. Dampa Adin, one of the subsidiary farm houses of Rumah Nyala, Sungai Sut, Kapit District. On 20th February, 1951, when this photograph was taken Dampa Adin housed 12 *bilek* families. The woman on the open platform (*tanju*) is tending *padi* that is being sunned prior to pounding.

4. The pattern of Iban agriculture: from the long-house in the valley the surrounding hills have been brought into cultivation. (For this photograph taken in Sungai Bangkit, Kapit District, I am indebted to Mr. B. E. Smythies).

5. An Iban farm (*umai*) in Sungai Tiau, Ulu Mujong, Kapit District. Photograph taken on 8th December, 1949, when the land was covered with young *padi*. To the left is a grove of sago palms, grown as a scarcity crop. In the valley, a watch-house (*langkau umai*) is in course of construction.

6. Dampa Along, one the subsidiary farm houses of Rumah Nyala, Sungai Sut, Kapit District. This *dampa*, occupied by three *bilek* families, was still in course of construction when this photograph was taken on 24th September, 1949, and only the central family had finished building the open platform (*tanju*) of its apartment. The felled secondary jungle (*damun*) shown in the background had been fired two days previously, but the burn was a very poor one.

7. Felling in virgin jungle (*kampong*). The axe-man is standing on a scaffolding (*tundan*) which lifts him above the buttress roots of the tree. Photograph taken on 1st August, 1949; Sungai Sut, Kapit District.

8. After the felling: secondary jungle (*damun*) drying in the sun. Photograph taken on 28th July, 1949, Sungai Sut, Kapit District.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

22. This photograph shows the steepness of the hill-sides that are sometimes cultivated by the Iban. The felled trees are those of mature secondary jungle (*damun*). Photograph taken on 15th October, 1949, about three weeks after the burn which was a very poor one; Sungai Sut, Kapit District.

23. The growth in the background is *dijap kampong* about nine months in age: an example of regeneration from virgin land (*kampong*) which had been farmed for the first time during the previous year. The land in the foreground, from which the *padi* has just been reaped, has been cultivated for two years in succession. Photograph taken on 21st February, 1951; Sungai Sut, Kapit District.

24. The evils to which excessive cultivation leads: erosion and the invasion of the land by Imperata and other weeds. (Sheet erosion such as this is rare on Iban farms however, and this was the worst case encountered). Photograph taken on 3rd December, 1949; Sungai Tiau, Ulu Mujong, Kapit District.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

p. 146a

243X
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Plate 1. Iban farm clearings in Sungai Saban, Ulu Sut, Kapit District, Third Division, Sarawak.

243X
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Plate 2. Farm clearing in virgin jungle, Upper Batang Baleh, Kapit District

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

p. 146c

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Plate 5. An Iban *padi* farm bordered by a grove of sago palms, Sungai Tiau Kapit District.

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Plate 6. An Iban farm house (*dampa*) with secondary jungle (*damun*) in the background.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

p. 146 k

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Plate 21. A young Iban man carrying the seed of his sacred rice (*padi pun*) in a reaping basket (*sintong*).

243X
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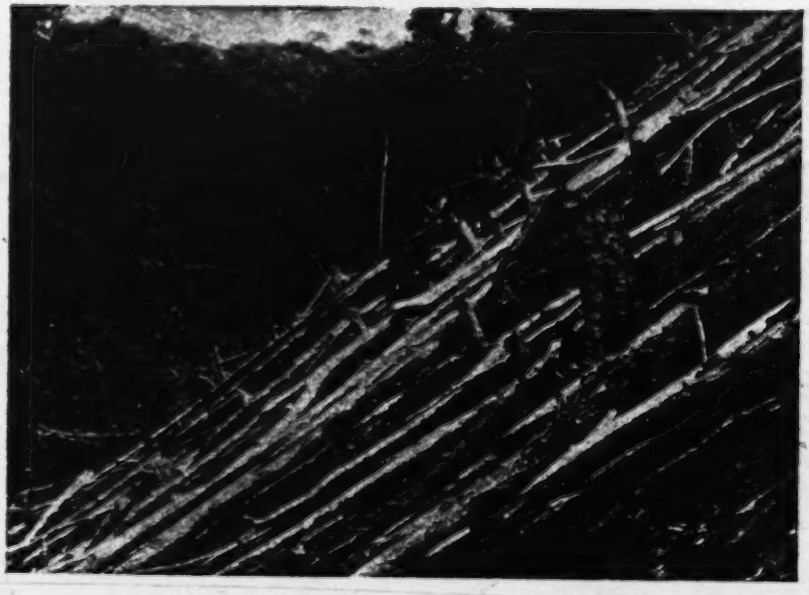

Plate 22. A steep slope being prepared for cultivation.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

p. 146 l -

137

Plate 23. The growth in the background is regeneration (about 9 months in age) from virgin jungle after a single cropping.

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Plate 24. The evils to which excessive cultivation leads: erosion and the invasion of the land by Imperata.

3: Low G-5 (1844-1847) 1848
OC6 Iban OC6

Dyaks of Peduñgan. The village established here is well built, and contains about sixty families; it is not fortified in any way, though the Dyaks possess some small brass guns. The other divisions of the tribe, which are equally under the protection of the government of Sarawak, have villages on the Samarhand and Sadong rivers, but many little clusters of houses are to be found scattered about in the country near the mouths of the above-named streams, nominally belonging to the tribe, though not residing at any of the principal villages. The Dyaks of Lundu have been a pet tribe of Mr. Brooke's, on account of the heroic gallantry displayed by them and their chief on many occasions of difficulty and danger. The conduct of the orang kaya, and his assistance to Mr. Brooke in the Seniawan war, are fully detailed in the Hon. Captain Keppel's work, whom they also accompanied in his expeditions against Sakarran and Sarebas, which are their favourite places of attack, they being always anxious to revenge themselves on these people, who have caused them so much loss and trouble during their residence in their former villages.

The country occupied by the sea Dyaks on the great rivers is generally flat towards the sea, but more undulating in the interior. It is covered in many parts with dense forests, and the soil is rich and productive, so that, when peaceably disposed, they are large exporters of rice, and all kinds of fruits are abundant and very cheap in their districts. As far as is yet

4: Roth E-4 (no date) 1891 OC6 Iban OC6

782 Not very long ago they would have punished such an offence
821 with death or at mildest with slavery. If they are deluged with rain when the crops should ripen instead of sunshine and dry weather, or should a landslip occur, &c., &c., they fancy the same (unnatural lust), and visit the offender with condign punishment and purify the earth with blood of pigs and fowls.

588 On one occasion an Undup Dyak married his first cousin, and
783 the people refused to visit him unless he asked *ampun*, *i.e.*, forgiveness. To obtain this he killed a pig and threw the whole of it into the river with one plate and a *duku* (chopper). I tried once to make out of whom they asked pardon, and I was told, as I always am, "*sighi adat kami*—only our custom." They said it was to no evil spirit, but to the whole country, in order that their paddy might not be blasted (see p. 133).

824 A man from Banting once came to me to ask for medicine
● 137 for his brother, who, he said, was unable to move his lower limbs, and that part of his thighs were falling off in pieces.
753 Afterwards I found out that the man had been trimming or topping a tree on his farm called *rara*. This tree is an *antu* tree, and, generally speaking, nothing will grow under it or near it. It is forbidden amongst the Dyaks to cut it unless they first take a hatchet which they carefully wrap round with cotton; they then strike as hard as they can, leave the axe in and call upon the *antu*, either to leave the tree or to give them the sign that he does not wish it cut down; then they go home. Next day they visit the tree, and if they find the axe lying on the ground they know it is inhabited and do not attempt to cut it down; if the axe still remain in, they can, without danger, cut the tree down. I consider it is no *antu*, but strychnine which exists in the sap to a large percentage. Now, so long as the sap is running, no axe would long remain in, but must necessarily be cast out by the action of heat and the expansion of the gutta exuding. If the axe remain in, it proves only that the tree is not lively but ready to die. The gutta falling on the skin is taken up and absorbed and so impregnates and poisons the whole body.

756 The *manangs* or medicine-men of the Sea Dyaks rank next
554 in importance to the *Tuah Rumah* or village chiefs, and it is by no means an unusual thing for the medicine-man himself to be the chief of the village in which he resides. There is nothing whatever to prevent him becoming so, provided he be popular; but to be popular he must be a faithful interpreter of dreams and a powerful exorciser of evil spirits. The entire system of the *manang* is based upon superstition and imposture supplemented with a smattering of herbalism. His reputation depends upon the number of cures he is able to effect; or, in

5: Roth E-4 (no date) 1892 OC6 Iban OC6

into the far interior, or plunge into the jungle in quest of its produce.

As a rule the women have to do all the weeding (*mantun*) by themselves; this is a very laborious task, as the weeds grow so rapidly as to threaten to choke the paddy unless promptly removed. Another grievance is the grass, originally called *rumput teku*, but since nicknamed *rumput blanda*, and which they declare was introduced by the whites to feed their cattle on. It is now a proverbial saying with them that it is impossible to get rid of this grass, likewise is it unprofitable to shake off the rule of the white man.

As the paddy begins to ripen, the men return to their homes and the families remove entirely to their farms, where there is plenty to do to scare away the birds and other pests and to prepare for the harvest. The paths intersecting the farm are closed at this season, and no one can traverse them without paying a penalty or sin-offering of a fowl and a bit of iron. Those who may be suffering from positive want, having exhausted their last year's stock, now glean of the half ripe paddy as much as they require for their immediate necessities; this is called *numbar*.

But when the paddy is fully ripe they all turn out, men and women, boys and girls, with knives and baskets and pluck the ripe ears with a few inches of stalk; these are then carried home and put out to dry, after which they are thrown into an enormous sieve suspended from the roof of the house, and threshed by the action of the feet, the grains falling through on to a mat placed underneath on purpose to receive them. After thorough drying in the sun, they are put in tubs made of bark (*tibang*) and stowed away in the loft or else housed in a hut, built on purpose for them hard by the village, the posts of which are furnished with wooden discs immediately below the flooring to prevent the rats from entering. The Dyak method of pounding the paddy to free it from the husk by means of pestle and morter is injurious to the grain. By it the hard outer skin which protects it from the weevil is broken and this insect soon takes advantage of the circumstance to attack and destroy it. In the husk or paddy state the rice can be kept for years without injury.

The Punans and Kajamans farm meagrely; they prefer the sago to rice and grow the palm.

2. *Habitations.*

A Sea Dyak village is a terrace upon posts varying in length according to the number of houses of which it is composed, and

7:Gomes M-5 (ca. 1890)1911 OC6 Iban OC6

SEVENTEEN YEARS AMONG
THE SEA DYAKS OF BORNEO

CHAPTER I

SARAWAK—SIR JAMES BROOKE

Bornean jungles—A picture from the past—Unsettled life—Sudden attacks—Head-hunting—Pirates—Malay pirates—Dyak pirates—Sir James Brooke—The *Royalist*—Rajah Muda Hassim—Rajah of Sarawak—Suppression of piracy and head-hunting—Captain Keppel—Visit to England, 1847—Introduction of Christian mission—Sir Charles Brooke.

THE Bornean jungles are immense tracts of country covered by gigantic trees, in the midst of which are mountains clothed in evergreen foliage, their barren cliffs buried beneath a network of creepers and ferns. The striking features are the size of the enormous forest trees and the closeness of their growth, rather than their loveliness or brilliancy of colour. In the tropical forests few bright-coloured flowers relieve the monotony of dark green leaves and dark brown trunks and branches of trees. The prevailing hue of tropical plants is a sombre green. The greater and lesser trees are often loaded with trailers and ferns, among which huge masses of the elk-horn fern are often conspicuous. But there is little colour to relieve the monotony of all these sombre hues. Here and there may be seen some creeper with red berries, and many bright-coloured orchids hang high overhead. But it is

7:Gomes M-5 (ca. 1890)1911 OC6 Iban OC6

impossible for the observer to gain a favourable position for beholding the richest blooms, which often climb far above him, turning their faces towards the sunlight above the roof of foliage.

These regions are still inhabited by half-clad men and women, living quaint lives in their strange houses, observing weird ceremonies, and cherishing strange superstitions and curious customs, delighting in games and feasts, and repeating ancient legends of their gods and heroes. But in a few years all these things will be forgotten; for in Borneo, as elsewhere, civilization is coming—coming quickly—and all the distinctive Dyak customs will soon be things of the past. Already the Dyak is mixing with other races in the towns, and is changing his picturesque dress for Western costume. He is fast forgetting his old practices and his old modes of thought.

The tropical forests of Sarawak were much the same years ago as they are to-day. But the life of the Dyak is already greatly changed, and his lot improved by the introduction of just rule, law and order, and respect for human life. For a moment let us go back to the past, and try to picture the life of the Sea Dyak as it was some sixty years ago.

In those days there was constant warfare between the different tribes, and the Dyaks lived together in large numbers in their long houses, which had stockades around them, so that they had some defence against any sudden attack. Very often the young braves would make an expedition against some neighbouring tribe, simply because they wanted to bring home, each man of them, the ghastly trophy of a human head, and thus gain favour in the eyes of the Dyak girls. In these expeditions many were killed and many taken captive, to be the slaves of the conquerors.

7:Gomes M-5 (ca. 1890)1911 OC6 Iban OC6

when the storm-clouds have hurried overhead and the winds shrieked through the tree-tops in fierce discord, ruthlessly twanging the harp-strings of Nature, I have understood why it is that the Dyaks believe that the lone forests are inhabited by the spirits of the wind and the rivers, of the mountains and the trees.

No one can adequately realize the Equatorial Bornean jungle until he sees it in all its wonder—the heated steamy stillness broken by weird sounds, the colossal trees, the birds with brilliant plumage, and the infinite variety of monkeys among the branches, sitting, hanging by hands or tails, leaping, grimacing, jabbering, as they see the strange sight of human beings invading their domains.

What are the wild animals that the traveller is likely to meet as he walks through the jungle? The animal life of Borneo is akin to that of Sumatra or Java, but with certain differences. Borneo is free from tigers, and this is fortunate, for travelling through the forests would be dangerous indeed if tigers were likely to be encountered. The only wild animals to be met with are the small and comparatively harmless tree-tiger, and the small brown honey-bear, but neither of them is much feared. There are, of course, ferocious crocodiles in the rivers, and many varieties of snakes, varying in size from the python downwards. But the cobra, so much dreaded in India, is not met with in Borneo, and death from a snake-bite is very rare. The elephant and the rhinoceros seem to be confined to the north end of the island. There is the great man-like ape—the *orang-utan*, or *maias*, as it is called by the Dyaks. It is only found in a limited area, in the territory between the Batang Lupar and the Rejang Rivers. As a rule, this animal does not exceed the height of four feet two inches, though there are

7:Gomes M-5 (ca. 1890)1911 OC6 Iban OC6

136 stories told of its attaining a far greater size. The height, however, gives a poor idea of the animal's bulk and strength. The body is as large as that of an average man, but the legs are extremely short. Its arms are of great length, and measure over seven feet in spread. The whole body is covered with long red hair. It rarely attacks man, but when provoked is very ferocious, and as its strength is very great, it is a foe not to be despised. There are numerous wild boars in the jungle, but they never attack the traveller, and are not a source of danger.

137 The vegetation of Borneo is rich and varied. By the seashore and at the mouths of the rivers there grows the *nipa* palm, "the tree of a thousand uses." The young leaves are used for making *kadjangs*, the awnings with which Dyak boats are covered. The old leaves are made into *attap* for the roofs and walls of their houses. From [272] the blossom a sweet drink is obtained, and this is con- [263] verted into sugar. From the ashes of the burnt stump of this palm salt is obtained. As one travels up a Bornean river the *nipa* palms become less and less plentiful, and one finds the banks covered with mangroves. These trees thrive on the muddy banks. A network of roots grows out of the stem several feet above the soil, and keeps them firm. At night these mangroves are lit up by myriads of fireflies. The missionary stationed at Banting many years ago had all the mangrove-trees, except one on each side of his landing-place, cut down, and on the darkest night there was no difficulty in knowing where his boat was to stop. These two trees, covered with fireflies, were not to be mistaken in the surrounding darkness.

In Borneo there are many varieties of palms. There is the *nibong* palm, the trunk of which is often used for the

7:Gomes M-5 (ca. 1890)1911 OC6 Iban OC6

posts of native houses. When split up, it is used for the flooring. There is the *sago* palm, from the pith of the trunk of which sago is obtained. There are the cocoanut and betel-nut palms, and lastly a useful climbing palm—the cane, or *rotan*—which is exported in great quantities and used for the seats of chairs.

137● 824

There are many kinds of useful woods to be found in the Bornean jungles. There is the *bilian*, or iron-wood, which is so valuable for building purposes, as it is practically indestructible. It will not rot in earth or water, and it is the only wood that the white ants cannot destroy. There are also many other hard woods used for the building of houses and the making of keels for boats.

The ebony-tree is to be found in Borneo. The ebony is the heart of the tree, the rest of the wood being of a light colour.

The camphor-tree is also found, as well as various trees which produce gutta and rubber of different sorts.

There are many fruit-trees, but the fruit most loved by the Dyaks is the *durian*. This grows on a large tree, and is about the size of a man's head. When ripe, it is easily split open, and in it are pods in which are rows of seeds covered with a sweet pulp.

12: Haddon & Start E-4 (no date) 1936 OC6 Iban OC6

Leeches

All those who have travelled through the jungle in Borneo are unpleasantly acquainted with the land leeches, *lintah*, which stretch out from the foliage and fasten themselves not only on exposed portions of the body but find their way beneath the clothing; periodic examination of the whole person is sometimes necessary in order to remove these blood-suckers. It is rather surprising that these creatures are depicted, so far as we know, on but a few *bidang*. On pl. XVI, *j*, *k*, are seen leeches on a creeper and a flower. Leeches with interlocked mouths are called *betegam*, which means "to swallow all at once"; it is physically impossible for a leech to swallow anything except blood. Their coiled-up (*besimpan*) tails are shown at *l* and *m*; the former is from one of four *bidang* in the Sarawak Museum (nos. 213, 217, 219, 465; Camb. Mus. photos. Indon. Born. 324, 329, 330, 409).

We do not understand the significance of the hooks on the bodies of the leeches. It is tempting to assume that leeches are represented as charms to keep them away from the wearer of the *bidang*.

The *S.D.D.* gives "*Lintah*, the water leech", but the *lintah* on the cloths are certainly land leeches.

PHYLLOMORPHS

The *empili*, mast, drawn on pl. XVIII, *a*, *b*, *c*, *d*, *e*, is a wild nut which is the favourite food of wild pigs; it, in conjunction with the arenga palm, *entibap* (pl. XXII, *a*, *b*, *c*, *d*), and ratan leaves is very frequently used as the decoration for the narrow patterned stripes at the sides of the cloths.

The arenga palm, *Arenga saccharifera*, has many uses: the juice from the inflorescence makes sugar and, when fermented, toddy or palm-wine; the black fibres around the trunk and the bases of the fronds make very strong and durable rope, preferred to ratan in house-building; the cotton-like down is used as tinder, *lulup*; and the trunks afford excellent sago.

There are many varieties of the climbing palm (*Calamus* sp.) known as *rotan* by the Skarang and Saribas Iban and as *wi* by other Iban: the thinner kinds are the more valuable. Baskets and mats are made of split ratan and pliable ratans are used as ropes. The thorny tendrils (*tangai*) and leaves of the ratan (*daun wi*) are very frequently represented in the narrow border patterns of *bidang* and occasionally in those of *pua* (pl. XXII, *j*, *k*, *l*, *m*, *n*).

X531 137 Many other jungle plants and one species of ratan have very large thorns which make the clearing of the jungle very difficult; two crossed thorny stems of ratan, *unak wi bekait*, are illustrated on pl. XXII, *o*.

The *tangkong* "creeper" (? a climbing plant), which is a jungle plant with scented pendant flowers, provides many characteristic patterns. The designs *b*, *c* on pl. XIX and all those on pl. XX are derived from this plant. The *randau* is some kind of creeper or climbing plant.

Illustrations of *bangkit* flowers are given in pls. XIX, *a*; XXI, *e*; the fruit is always represented as lozenge-shaped (pls. VI, *a*, *d*, *e*; XVIII, *i*, *j*, *k*) and is one of the most common motives on woven and embroidered cloths. The *S.D.D.* says, "*Bangkit*, a scented flower, scented leaves or fruit of certain jungle trees used as scent or ornaments to decorate the hair or body".

The fruit of the *beringen* tree is occasionally represented (pl. XVIII, *l*) and much more often that of various species of mango (*Mangifera*): we illustrate *buah bunut*, "horse-mango" (pl. XXII, *r*) and *buah angkong* (pl. XXII, *q*, *s*). "*Angkong*, a tree bearing strong-scented diamond-shaped fruit (the horse manggo)", *S.D.D.*

X531 136 A tree with its trunk and branches outlined by the light of fireflies dominates the surface of *pua* 35.922 (pl. XXI, *c*), and *pua* 35.928 is very similar. Species of large fireflies are common in Borneo, and when they settle in enormous numbers on a bush or tree it appears as if on fire; the white line round the designs suggests this remarkable phenomenon.

X531 137 262 Very frequently repeated in all the kinds of cloths are the young shoots of the bamboo *pemuchok tubu*, which are used as a vegetable; we illustrate a few on pl. XVIII, *f*, *g*, *h*.

The curled tops of the *rĕsam* fern, *gelong paku rĕsam*, are occasionally depicted in a realistic manner (pl. XVIII, *m*, *n*, *o*). *Paku* is the general name for ferns, particularly for *Hollenium esculentum*, which is eaten as a vegetable. The *deman* is the fern *Gleichenia dichotoma*.

X531 137 824 Other useful plants are represented on cloths, the most frequent being the *bingka lia*, "root of the ginger" (*lia* or *liah*), and gourds. Seeds, *leka*, are shown on pl. XIX, *f* of the *labu*, "a white pumpkin, gourd, calabash (*Cucurbita lagenaria*)", *S.D.D.*, the dried fruit of which is used as a water vessel. The *serok genok* is shown on pl. XXII, *f*; the label says, "*genok*, a gourd with a long twisted stalk; the fruit is used by the Dayaks to rub their bodies in the place

of soap". The *S.D.D.* says, "*Genok*, gourd, a white pumpkin (when dried these are used as water vessels)". *Bunga janggat*, flower of the *janggat*, "a white pumpkin, a fruit resembling a vegetable marrow", *S.D.D.*, is embroidered on jacket 35.904 and illustrated on pl. XXII, *g*.

Lelambak is a conventionalized flower very frequently plaited in mats and baskets; it is embroidered on jacket 35.918 (2) (pl. XXII, *i*).

It will be noticed that practically all of the plants represented are of value to the Iban in their daily life, though the thorny plants may form an exception.

OBJECTS IN DAILY USE

A small number of the designs, probably about 3 per cent., represent objects connected with the daily life of the Iban.

A plot of land, *ras*, and the balk or ridge of earth around a plot of land, *ladang*, are illustrated at *e* and *f* on pl. XXIII. A rocky ledge in swamp-land, *padong paya* or *paya bepadong*, *a*, *c*, and sown swamp-land, *tabor paya*, *b*, are shown on pl. XXV, and mentioned on pp. 91, 92, 95; we do not profess to understand the designs. Zigzag fences, *pempang leüngkok*, are sometimes shown (pl. XXIII, *g*).

Connected with houses are: the plank where the prop is tied, *papan penukoh*, and serrated notch in an upright post for a cross bar, *dabong betangkal* (pl. XXIV, *m*, *l*). Boards or planks and poles are represented on other cloths, and the notched steps of a pole-ladder, *tangkal tangga*, or *tebok tangga pantok*, on *bidang* 35.877 (27), 35.862 (21) respectively. The framework of an Iban cooking place, *entilang*, with its shelves and a bird on the middle shelf is depicted on pl. XXIII, *h*, two hearths, *entilang dapur*, *j*, *k*, and fire-tongs, *spit api behilak*, *i*. A tripod for cooking rice, *tanku asi*, is seen on pl. XXIV, *f*, and a "box" for paddy husking, *entilang pelangka*, at *i* and pl. XXX, A; see p. 78 for another kind of *plangka*. Hooks, *kait* (pl. XXIII, *o*, *p*, *q*), are frequent and also wedges, *pasak* (*r*, *s*, *t*, *u*).

Warlike pursuits are represented by the shield, *trabai bungkok* at *a*, the handle of a shield, *gelang trabai*, at *b*, and the sheath of a kris or dagger, *sarang kris*, at *d*. A canoe, *besampan*, with a suggestion of the stern platform, *dandan*, and oars, *dayong*, projecting from its sides is drawn at *c*, and a paddle, *ulu*, at *n*, and crutch-handles of paddles at *l*; *m*, all on pl. XXIII.

134 the stocks of soluble nutrients and minerals and reduces the organic
137 matter present.[1] As a result, many parts of the District are covered with deserts of lalang (Imperata cyclindrica), a coarse grass common in other areas of Southeast Asia, resam (Gleichenia dichotma), an inedible fern, and other scrub which can survive in the relatively barren soil (tanah kusi) which cannot recover and accumulate nutrients because of inadequate cover.

In lowland areas, the bacteria which normally cause organic decay cannot function due to poor drainage and high temperatures. Instead of rotting, leaves, twigs, and other dead vegetable matter piles up in layers of highly acid peat (tenah rau), accumulating to depths of seventy-five feet in some places as, for example, at the 8½ mile, Oya Road. Even when drained, peat soils are sour (masam) and not arable because of the highly acid condition. Such soils comprise 2,322 square miles of the Third Division, about one-quarter of the Sibu District (Anderson, 1964-69).

Exceptions to be noted occur where pockets of igneous rock are

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[1] After decades and reams of criticism of the shifting cultivator and his techniques for laying waste the land, some agriculturalists now admit that such techniques are the only viable ones given local conditions. On this point, Spencer notes that ". . . under normal conditions, the tropical cultivator traditionally has disturbed his soil as little as possible. The judgement that Asian shifting cultivators are primitive, inefficient, or lazy because they do not fully turn the soil at every break in the cropping cycle is misinformed" (1966-6).

000 in the District.[4] Regarding the relatively minor importance of mining in Sarawak, Jackson reports:

> "At present, mining contributes less than 4 per cent of the value of Sarawak's total exports excluding re-exports of petroleum piped from Brunei; moreover, it provides employment for less than 2,000 people" (1968-138).

4. Vegetation

137 [132]

The combination of high temperatures, ranging from 72°F (22.2°C) to 88°F (31.1° C), and an annual rainfall of 100 to 180 inches promotes the continuous and luxuriant plant growth that has earned for Borneo the epithet, "the evergreen island." Three-quarters of Sarawak is still covered by primary forest, and the remaining one-quarter is comprised of secondary growth and lalang Savannah, areas of settled cultivation and shifting cultivation, and urban areas. Location, soil type and altitude produce marked vegetation zones varying from extensive stretches of swamp forest on the coastal plains to the montane forest on the Indonesian border.

The Sibu District is comprised of several vegetation zones, including mangrove and nipa palm (Nipa fruticans) swamps, mixed swamp forest and alan forest, interspersed with areas cleared for cultivation.

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[4] Representatives of a Japanese company are taking samples for analysis from some areas, for example, Lubok Guchi, Sungai Assan.

137 The mangrove and nipa forests grow near the mouths of the Rejang and Tatusan Rivers. The peat swamp forst is found in low-lying areas of the District and usually associated with alan forest which grows farther from the swamp center.

Although total cash value to timber exports (Table 3) has been biased towards the swamp woods, this is primarily because swamp ramin is sawn and the value of sawn timber is about two-and-one-half times the cash value per volume as logs. Future reserves are predominantly in the hills.

The forests contain two natural rubber trees, gutta percha and india rubber, which were of considerable commercial value until this century, when their importance has declined before the more useful Hevea brasiliensis or para rubber. Camphor, jelutong or chicle, rottans and various types of reeds are common. More than 100 different types of fruit have been identified (cf. Allen 1967), and many of these contribute substantially to the income of indigenes and Chinese.

5. Animals and Birds, Fish and Snakes

136 The animal population in the Sibu District has been vastly reduced within the past century. At the time of the Iban migrations in the mid-nineteenth century, and even until the beginning of the present century, writers described the capture of orang-utan (mayas) on Pulau

000 appeared in the trade returns for 1900 and has continued to be an important export until the present time. The jelutong tree grows wild and customary tapping rights are clearly recognized. The latex is coagulated with phosphoric acid and molded into cylindrical blocks approximately 15" x 18" x 15" and about 100 pounds on average. Prices vary according to whether jelutong is purchased in rural areas, where it tends to be generally wetter and brings a lower price, or in Sibu where it is drier, having lost moisture during transportation, and so bringing more on the market.

314 [137] The lowland tree or jelutong paya (Dyera lowii) is fairly evenly scattered throughout the mixed swamp forests and yields a latex which flows much more freely than that of the upland tree, jelutong bukit (Dyera costulata) of the lowland forests. Attempts at planting jelutong gardens have been disappointing, and the collection is likely to remain a matter of indigenous tappers working trees in [439] their natural habitat. With the low prices of rubber at the time of this writing, bringing about $ .15 per kati, the collection of jelutong and other jungle products is more profitable than rubber-tapping for some Ibans.

000 Rottans have been an important item since 1870, being exported for the manufacture of furniture and used similarly by a few craftsmen within the state. Prices on rottans have been very variable, depending